IN THE DRAWINGS:

Please substitute the one (1) sheet of drawings submitted herewith containing Figures 1A, 1B, 2A and 2B in replace of the originally-filed drawing sheet containing the same Figures.

REMARKS

Claims 1-11 are pending in the application. All claims stand rejected. Claims 1-11 stand rejected under 35 U.S.C. §102(e) as being anticipated by Fleytman, U.S. Publication No. 2004/0221672 A1. Also, claims 1-11 stand rejected under 35 U.S.C. §102(b) as being anticipated by Wildhaber, U.S. Patent No. 1,893,572. The Examiner's comments have been carefully considered by Applicants and Applicants respectfully submit that the case, as presently amended, is in a condition for allowance.

With respect to the drawing objections, Applicants submit herewith one drawing sheet containing Figures 1A, 1B, 2A and 2B. In the replacement drawing sheet containing Figures 1A, 1B, 2A and 2B, Applicants have replaced the handwritten reference numerals with more legible reference numerals. No other drawing amendments were made.

With regard to the rejections under 35 U.S.C. §102, Applicants traverse and submit that the present claims, as amended, are novel and non-obvious in view of Fleytman and Wildhaber. By the foregoing amendments, Applicants have amended claim 1 to incorporate the subject matter of claim 3 and, amended independent claim 6 to incorporate the subject matter of claim 7 as originally filed. Thus, by way of background, the present invention generally relates to a crown gear assembly comprising a crown gear and a pinion which meshingly engage each other. Two solutions are proposed for axially securing the pinion. In the first embodiment according to claim 1: the crown gear has teeth which are provided with flanks whose mantle lines extend substantially radially relative to the first axis; the pinion has teeth which are provided with flanks whose mantle lines extend substantially parallel relative to the second axis; and the pinion includes a collar adapted to contact a circumferential face of the crown gear, the collar being integrally connected to the pinion teeth. The second solution according to independent claim 6 provides: that the crown gear has teeth which are provided with flanks whose mantle lines extend substantially radially relative to the first axis; the pinion has teeth which are provided with flanks whose mantle lines extend substantially parallel relative to the second axis; and the crown gear includes a collar adapted to contact an end face of the pinion, the collar being integrally connected to the crown gear.

In contrast, Fleytman discloses in Figure 22 an enveloping worm 37 placed on the face of a worm gear 38. The enveloping worm 37 has 180° of threaded revolution (see paragraph [0064]). Accordingly, the worm gear transmission of Fleytman is completely unrelated to the claimed crown gear assembly of the present invention. Specifically, Fleytman lacks a crown gear with radially extending teeth, and a pinion gear with parallel extending teeth. Furthermore, even assuming that the base of the enveloping worm 37 is analogous to Applicants' claimed collar, the base is located at a substantial radial distance from the outer circumference of the worm gear 38. Accordingly, independent claim 1 is novel and non-obvious in view of Fleytman because Fleytman fails to disclose or suggest at least the following claimed features:

1) the crown gear teeth extend substantially radially relative to the first axis;
2) the pinion teeth extend substantially parallel relative to the second axis; and
3) that the pinion collar contacts a circumferential face of the crown gear and is integrally connected to the pinion teeth.

Independent claim 6 is novel and non-obvious in view of Fleytman for similar reasons. Specifically, Fleytman fails to disclose or suggest that the crown gear teeth have radial mantle lines relative to a first axis, that the pinion teeth have parallel mantle lines relative to a second axis; and that the crown gear teeth include a collar adapted to contact an end face of the pinion, wherein the collar is integrally connected to the crown gear.

Accordingly, as Fleytman fails to disclose or suggest each and every element of independent claims 1 and 6 and all of the claims that depend therefrom, Applicants respectfully request that the rejections under 35 U.S.C. §102(e) be withdrawn.

For similar reasons, the rejections under 35 U.S.C. §102(b) in view of Wildhaber should also be withdrawn. Wildhaber discloses a spiral beveled gearing structure. See, for example, Figure 3 of Wildhaber. The gear 13 and mating pinion 11 contain spiral teeth 17, 18, respectively, which have a large inclination angle. See column 1, lines 10-15. To prevent the tendency of axial displacement, thrust rings 30, 31 are provided

which are designed as separate parts secured to the pinion by means of a nut 32. See column 2, lines 34-40.

Accordingly, the present claims are novel and non-obvious in view of Wildhaber because the Wildhaber reference fails to disclose or suggest at least the following features of Applicants' claimed invention as set forth in claim 1:

1) that the crown gear has teeth which are provided with flanks whose mantle lines extend substantially radially relative to the first axis;

2) that the pinion has teeth which are provided with flanks whose mantle lines extend substantially parallel relative to the second axis; and

3) that the collar is integrally connected to the pinion teeth.

Similarly, independent claim 6 is also novel and non-obvious in view of Wildhaber because Wildhaber fails to disclose or suggest a crown gear with teeth having radial mantle lines relative to a first axis; a pinion with teeth having parallel mantle lines relative to a second axis; and a crown gear including a collar adapted to contact an end face of the pinion wherein the collar is integrally connected to the crown gear. Thus, as Wildhaber fails to disclose or suggest several of Applicants' claimed features, the rejections under 35 U.S.C. §102(b) should be withdrawn.

Besides being novel and non-obvious in view of the cited references, the claimed crown gear assemblies of the present invention provide significant advantages over prior art designs. In particular, because of the claimed teeth design, the axial setting of the pinion need not be very accurate because, when the axial setting of the pinion is changed within certain limits, the tooth engagement does not change in any way. This advantage is identified in paragraph [0003] of the application as originally filed. This advantage however is not provided in designs employing worm gears or spiral gears as disclosed in the cited prior art documents. A further advantage of the claimed invention is that by the collar of the pinion (claim 1) and the crown gear (claim 6), respectively, the pinion is secured directly by the design of the respective gear. In other words, there are no additional parts necessary as is the case, for example, in Wildhaber.

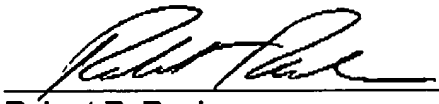
Finally, concerning the Information Disclosure Statement objections set forth at paragraphs 2 and 3 of the Office Action, Applicants submit herewith a Supplemental Information Disclosure Statement for consideration.

With regard to the missing certified copy of the priority document, Applicants submit herewith evidence of its submission on July 21, 2003. The certified copy of the priority document should have been placed in the application file at the Patent Office.

Having overcome all of the objections and rejections set forth in the Office Action, the Applicants submit that claims 1, 2, 4-6 and 8-11 are in a condition for allowance. A Notice of Allowance indicating the same is therefore earnestly solicited. The Examiner is invited to telephone the Applicants' undersigned attorney at (248) 223-9500 if any unresolved matters remain.

Respectfully Submitted,

ARTZ & ARTZ P.C.



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